CLAIMS

What is claimed is:

1. A method comprising:

applying plasma power to a plasma enhanced sequential chemical vapor deposition chamber;

introducing a deposition gas after applying the plasma power;

starting nitride deposition in the chamber to form a first portion of a layer on a substrate; and

turning off the plasma power.

2. The method of Claim 1, further comprising:

reapplying plasma power;

reintroducing a deposition gas after reapplying the plasma power;

starting nitride deposition in the chamber to form a second portion of the layer on the substrate after reapplying the plasma power; and

turning off the plasma power.

3. The method of Claim 2, wherein introducing a deposition gas comprises introducing silane gas.

4. The method of Claim 2, wherein introducing silane gas comprises introducing silane gas at least 0.5 seconds after applying plasma power.

5. The method of Claim 2, wherein introducing silane gas comprises diverting silane gas from a pump to the deposition chamber.

6. The method of Claim 1, further comprising initiating set up gas flow and pressure in the chamber before applying the plasma power.

7. The method of Claim 6, wherein initiating set-up gas flow comprises flowing ammonia and nitrogen gases into the chamber.

8. The method of Claim 1, further comprising pumping away residue gases after turning off the plasma power and before reapplying the plasma power.

9. The method of Claim 1, further comprising moving a first nitride supply fixture to form the first portion of the layer away from the wafer and moving a second nitride supply fixture to form the second portion of the layer to the wafer after forming the first portion of the layer and before forming the second portion of the layer.

10. The method of Claim 1, further comprising moving the wafer to another chemical vapor deposition position after forming the first portion of the layer and before forming the second portion of the layer.

11. The method of Claim 1, further comprising repeating turning on and off the nitride supply and the plasma power substantially simultaneously until a complete layer is formed.

12. A semiconductor device having a layer formed in accordance with the method of Claim 1.

13. The semiconductor device of Claim 12 wherein the layer is a nitride etch stop layer.

14. A semiconductor device comprising a layer formed by sequential chemical vapor deposition, the layer having no intra-film interfaces corresponding to transitions of the sequential chemical vapor deposition formation.

15. The semiconductor device of Claim 14 wherein the layer is a nitride etch stop layer.

16. The semiconductor device of Claim 14 wherein the layer is a silicon nitride layer.

17. The semiconductor device of Claim 14 wherein the layer is an insulating layer for a gate of a flash memory transistor.

18. A semiconductor device comprising:

a drain area;

a source area;

a gate layer coupled to the drain area and the source area;

a sequential deposition nitride layer overlying the gate layer, the nitride layer having no intra-film interfaces corresponding to transitions of the sequential deposition.

19. The semiconductor device of Claim 18 wherein the layer is a nitride etch stop layer.

20. The semiconductor device of Claim 18 wherein the layer is an insulating layer for a gate of a flash memory transistor.